



## APPENDIX VI

### DRAFT NEXTGEN CAPABILITIES

Appendix VI provides the draft Next Generation Air Transportation System (NextGen) Capabilities.

The Joint Planning and Development Office (JPDO) is evolving the presentation of NextGen products to use a common, capability-based structure. This structure will allow the JPDO and NextGen stakeholders to communicate the accomplishments and evolution of NextGen using common terminology, and provide clear alignment between the NextGen investment portfolio and the resulting value to the stakeholders and the Nation. The NextGen Capabilities will serve as the basis for capability-based analysis, modeling, and simulation used to assess alternatives and investment trades, and identify initiatives or programs that maximize return on investment

The beginning each IWP functional chapter currently discusses the alignment of the functional area to one of more of the draft Capabilities. The IWP will mature in future versions to describe how the current planning elements align to the draft Capabilities.

The draft NextGen Capabilities are as follows.

- 1. Provide Collaborative Capacity Management:** The ability to dynamically balance forecasted airspace and airport demand and utilization in collaboration with enterprise stakeholders through proactive strategic planning and automation (e.g. decision support systems), using airspace and airport design requirements, standards and configuration conditions, and with consideration of other air transportation system resources.
- 2. Provide Collaborative Flow Contingency Management:** The ability to provide optimal, synchronized, and safe strategic flow initiatives and minimized operational impacts in collaboration with enterprise stakeholders, through real or near real time resolutions informed by probabilistic decision making that address large demand/capacity imbalances within capacity management plans.
- 3. Provide Efficient Trajectory Management:** The ability to provide trajectories that minimize the frequency and complexity of aircraft conflicts within the flow through trajectory negotiation and adjusting individual aircraft trajectory and/or sequence when resource contention requires.
- 4. Provide Flexible Separation Management:** The ability to establish and maintain safe separation minima from other aircraft, vehicles, protected airspace, terrain, weather, etc., predict conflicts, and identify resolutions (e.g., course, speed, altitude, etc.) in real time to accommodate increasing capacity demands and traffic levels using automation (e.g. decision support systems) while applying reduced separation standards.
- 5. Provide Effective Information Sharing Environment:** The ability to improve information required by aviation regulation, situational awareness and enhance decision making by managing, integrating, and flexibly delivering, relevant and reliable data and information (e.g., advisories, signals, and alerts) on demand in a format that is accessible, secure, and available to authorized users in a unified and coordinated environment.

- **Provide Integrated/Actionable NextGen Information:** The ability for authorized stakeholders to provide, discover, and consume timely and accurate NextGen information (e.g. weather, surveillance (PNT), aeronautical, and geospatial) in a decentralized, distributed, and coordinated environment through trusted aviation stakeholder partnerships and aligned data policies and standards.
  - **Provide Quality Net-centric Infrastructure:** The ability to store, transport, and retrieve NextGen information between providers and consumers on a reliable, scalable, and secure net-centric infrastructure by managing and reconfiguring resources and existing infrastructure capabilities to sustain normal operations and service level agreements.
6. **Provide Integrated Regulatory & Risk Management:** The ability to provide appropriate, effective and scalable solutions to mitigate environmental impacts, and safety and security risks in the air transportation system based on proactive risk identification and analysis through improved automation, policies, procedures, and processes using established standards, requirements, and responsibilities.
- **Provide Secure Air Transportation System:** The ability to provide a secure air transportation system using a layered, adaptive, and collaborative approach to identify, prioritize, and assess security situations and appropriately defeat an evolving threat using appropriate tactics, techniques, and procedures.
  - **Provide Improved Environmental Performance:** The ability to provide improved flexibility in the identification of environmental impacts and the optimized management of resources necessary to meet increasing capacity demands through collaboration and improved environmental operational policies, procedures, and practices.
  - **Provide Safe Air Transportation System:** The ability to ensure a safe air transportation system through prognostic safety risk assessments of systems, organizations, or operations using collaboration, automation (e.g. decision support systems), and enhanced safety assurance techniques, using safety standards, requirements, and responsibilities.
7. **Provide Flexible Airport Facility and Surface Operations:** The ability to reallocate or reconfigure the airport facility and surface assets to maintain an acceptable level of service that will accommodate increasing passenger and cargo demand levels, or changes in operational requirements, through infrastructure development, predictive analyses, automation (e.g. decision support systems), and improvements to technology and procedures.
- **Provide Flexible Airside Operations:** The ability to allocate and utilize the airport assets and infrastructure to conduct safe, secure, and efficient operations on the airport surface through predictive analyses, automation (e.g., decision support systems), and improvements to technology and procedures within an acceptable level of service that accommodates demand levels.
  - **Provide Flexible Landside Operations:** The ability to allocate and utilize the airport landside assets and infrastructure to conduct safe and efficient operations, through predictive analyses, automation (e.g., decision support systems), and improvements to technology and procedures within an acceptable level of service that will accommodate demand levels.
  - **Provide Collaborative Airport Management and Infrastructure Development:** The ability to maintain acceptable levels of service that will accommodate increasing demand levels or changes in operational requirements through collaboration with airport planning and management organizations, predictive analyses, and infrastructure development.